

FACT SHEET

Record of Decision for an Interim Remedial Action at the Monticello Mill Tailings Site, Operable Unit III, Surface Water and Ground Water



United States
Department of Energy
Grand Junction Office

May 1999

On September 29, 1998, a Record of Decision for an Interim Remedial Action for the Monticello Mill Tailings Site, Operable Unit III, Surface Water and Ground Water, was signed by the U.S. Environmental Protection Agency, the Utah Department of Environmental Quality, and the U.S. Department of Energy.

What Is an Interim Remedial Action and Why Is It Needed?

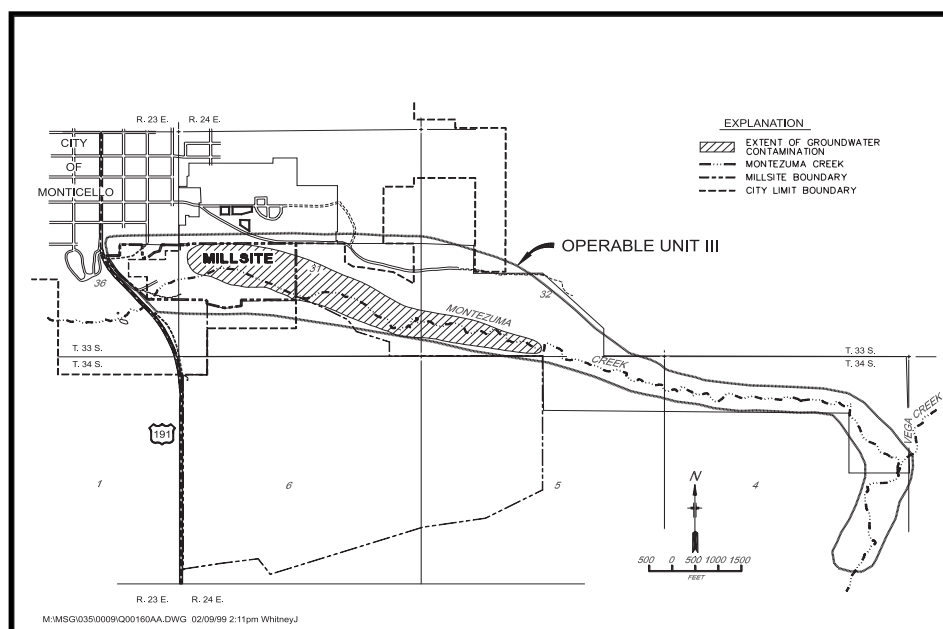
In July 1997, it became apparent that surface and ground water conditions at the Monticello Mill Tailings Site (millsite) were changing and would continue to change because of tailings excavation activities. These changing conditions made it impractical to proceed with selecting a final cleanup remedy for Operable Unit III (OU III). Project personnel decided to implement an interim remedial action to allow more time to observe the effects of tailings removal. This decision was formalized in an Interim Record of Decision signed on September 29, 1998, by the U.S. Environmental Protection Agency (EPA), Utah Department of Environmental Quality (UDEQ), and the U.S. Department of Energy (DOE).

Interim remedial actions are implemented to partially clean up or stabilize a site and are typically followed by

other actions that complete the steps to provide long-term protection of human health and the environment. Although interim actions contribute to overall cleanup, they are often short-term, temporary steps. Interim remedial actions are taken to prevent exposure to contamination, to control risks posed by contamination, to prevent further spread of contamination, or to achieve significant risk reduction quickly. For ground water actions, they may allow observation of aquifer changes that could be useful in evaluation and selection of the final remedy. The final remedial decision for on-site and off-site ground water will be made after millsite excavation is completed and the effects of the interim remedial action are better understood. This is currently planned for the year 2005.

Background

The millsite is a former uranium and vanadium ore-processing mill in the city of Monticello, Utah, that



Monticello Mill Tailings Site Operable Unit III, Surface Water and Ground Water

operated from the mid-1940s until 1960. Uranium and vanadium ores from across the Colorado plateau were transported to the millsite for milling and refining. The concentrated uranium ore was shipped off site for use in the production of nuclear weapons components. The concentrated vanadium ore was shipped off site for use in the hardening of steel. Processing of the ores resulted in the generation of mill tailings, which were stored on the site in four tailings piles. The tailings contained high concentrations of a variety of radioactive materials and metals that posed a risk to human health and the environment.

The Monticello Mill Tailings Site was placed on the National Priorities List (Superfund) in 1989 because of risks to human health and the environment associated with contaminated materials related to past milling activities. The millsite and nearby contaminated properties are currently being cleaned up, as required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). DOE, EPA, and the State of Utah entered into a Federal Facilities Agreement in December 1988. This agreement specifies that DOE is the lead Federal agency responsible for cleanup at the millsite and EPA and the UDEQ are the regulatory oversight agencies. A Record of Decision signed in 1990 specified how the millsite and surrounding properties would be remediated but did not address how the surface water and ground water would be remediated.

To clean up the site more efficiently, it was divided into three different parts called Operable Units. Operable Unit I (OU I) includes the tailings piles on the millsite. Operable Unit II (OU II) includes properties immediately adjacent to the millsite contaminated with windblown and stream-transported tailings, properties where tailings were used as fill, and areas contaminated with residual ore. Cleanup of OU II properties is nearly complete. Operable Unit III (OU III) consists of surface water and ground water contaminated by the millsite.

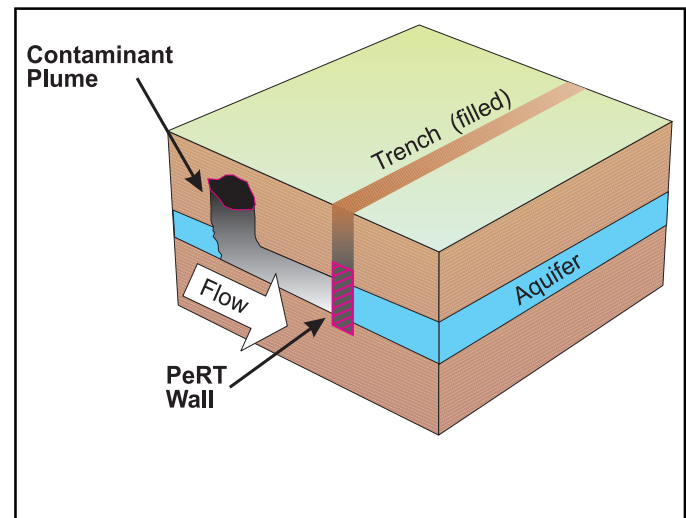
Site Conditions

The millsite and adjoining areas within the Montezuma Creek valley are underlain by two ground water-bearing units (aquifers). The upper unit is called the alluvial aquifer; the surface of the alluvial aquifer (water table) is generally encountered between 2 and 10 feet below the ground surface. This alluvial aquifer, which discharges to Montezuma Creek in several areas east of the millsite, has been contaminated by mill tailings. The contaminants of concern include uranium, vanadium, lead-210, and arsenic.

The sandstone aquifer beneath the alluvial aquifer, called the Burro Canyon aquifer (which occurs approximately 10 to 55 feet below the surface), is not contaminated. This lower aquifer is separated from the upper alluvial aquifer at and directly east of the millsite by layers of sandstone and shale that restrict downward movement of water. About 4,000 feet east and downgradient of the millsite, ground water moves upward from the lower aquifer (Burro Canyon) to the alluvial aquifer.

Selected Interim Remedial Action

Two alternatives for the interim remedial action were evaluated. The alternative selected by DOE, EPA, and the State of Utah consists of the use of institutional controls, millsite dewatering and treatment, monitoring, and installation and evaluation of a permeable reactive treatment (PeRT) wall.



Trench-and-Fill PeRT Wall

Institutional controls will restrict the use of contaminated ground water while ground water remediation is in progress. Granting access to water rights will be prohibited, and a moratorium will be placed on drilling new water wells in the contaminated alluvial aquifer. These controls will be administered through the Utah State Engineer's Office.

Ongoing millsite dewatering and treatment will continue during the remediation of the millsite and, if determined necessary, will be continued after excavation of source material from the millsite is completed. Contaminated water is currently being treated at the wastewater treatment plant on the millsite. The treated water is discharged to Montezuma Creek.

Monitoring will continue on a quarterly basis and data will be reviewed as data become available to assess the effectiveness of the interim remedial action. Monitoring involves sampling up to 24 monitoring wells and 8 surface-water locations and performing laboratory analyses for all metal and radionuclide contaminants of concern.

A PeRT wall will be installed as a treatability study to determine if it will remove contaminants from the ground water. This permeable wall will be placed across an aquifer perpendicular to ground-water flow and will contain reactive media (i.e., zero-valent iron) to remove or degrade contaminants as the ground water passes through it. There are some uncertainties associated with this technology. However, laboratory treatability studies are promising, and the technology has been used

successfully at sites similar in nature to OU III. Performance of the PeRT wall will be monitored on a regular basis, and, if problems arise, steps can be taken to correct them.

Progress

Activities associated with this interim action have begun and will continue for 4 to 5 years after millsite restoration is completed. At the end of that time, it is expected sufficient information will have been collected on the ground water and surface water conditions at the site to select a final remedy for OU III. A Final Record of Decision will document the cleanup strategy for OU III.
